Browns Ferry 2
3Q/2006 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2006
Identified By: Self-Revealing
Item Type: FIN Finding
Poor Workmanship and Inadequate Work Instructions for Maintenance on the 2C Reactor Feedwater Pump That Resulted in a Reactor Scram
A Green self-revealing Finding (FIN) was identified for inadequate work instructions and poor work practices associated with maintenance on the 2C reactor feedwater pump that resulted in a Unit 2 reactor trip. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 87178.

This finding is greater than minor because it involved human error and inadequate work instructions that affected the human performance and procedure quality attributes of the Initiating Event Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at-power operations. The finding was determined to be of very low safety significance because all safety-related mitigating systems operated as designed during and following the scram.
Inspection Report# : 2006002*(pdf)*

Significance: G Dec 31, 2005
Identified By: NRC
Item Type: FIN Finding
Requalification Program Simulator Exam Grading Error Resulted In Unidentified Individual Failure
Green. The inspectors identified a finding for licensee grading errors which resulted in a failure to identify an individual performance issue that would have resulted in an operational test failure during a biennial operating test requalification examination.

The finding is more than minor because if left uncorrected, it would allow less-than-competent operators to continue licensed duties and it affected the human performance attribute of the Initiating Event Cornerstone. The inspectors evaluated the finding using MC 0609, Significance Determination Process, Appendix I. Using the Operator Requalification Human Performance SDP flow chart, the finding involved the licensee's grading of an exam, in which the licensee failed to identify an individual performance issue which would have resulted in an operational test failure. Per the SDP flowchart, this finding is of low safety significance because it is likely that a single operator's potential error would be prevented or mitigated by the rest of the crew. (Section 1R11)

Inspection Report# : 2005005*(pdf)*

Significance: G Nov 18, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Three Examples of Inadequate Implementation of Corrective Actions
The inspectors identified a finding involving a non-cited violation (NCV), with three examples, of 10 CFR 50, Appendix B, Criterion XVI, for inadequate implementation of corrective actions for two previously identified NCVs. The previous NCVs were associated with rigging deficiencies that resulted in the drop of a Reactor Building crane trolley and with a human performance error that resulted in the loss of a 480-volt Shutdown Board and inadvertent start of emergency equipment.

The finding was more than minor because it is associated with the Procedure Quality attribute and objective of the Reactor

Safety/Initiating Event Cornerstone. In addition, if left uncorrected, this finding would result in a more significant safety concern because the failure to implement the corrective actions for the NCVs would result in more significant safety concerns. This finding was determined to be of very low safety significance because no related examples of significant rigging deficiencies or loss of power to shutdown boards caused by relay calibrations have occurred as a result of the inadequate implementation of corrective actions. The cause for all three examples were determined to affect the PI&R crosscutting area.

Inspection Report# : 2005011*(pdf)*

Mitigating Systems

Significance: G Sep 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Safe Shutdown Instruction Directs Operators to Connect 4 KV SD BD "A" to a Potentially Fire-Induced Fault in FA 8
The team identified a non-cited violation (NCV) of Unit 2 Operating License Condition 2.C.14 for an inadequate Safe Shutdown Instruction (SSI) which directed the operator to align credited 4 kV Shutdown Board (SD BD) "A" to its alternate supply (Shutdown Bus 2). This could connect 4kV SD BD "A" to a fire-induced fault and result in a lockout of the "A" emergency diesel generator (EDG), one of two required EDGs for Unit 2 to complete Safe Shutdown (SSD) for a fire in fire area 8 (FA 8). The licensee established compensatory measures for the issue and entered this performance deficiency into their corrective action program (CAP) for resolution.

The finding is more than minor because this performance deficiency is associated with the reactor safety mitigating system cornerstone attribute of protection against external events, i.e., fire. It also affected the cornerstone objective of ensuring availability of systems that respond to events in that 4kV SD BD "A" could have been de-energized and locked out in response to a postulated fire in FA 8. The inspectors determined that the issue was of very low safety significance (Green) because the finding was judged to have a low degradation impact on safe shutdown in that the deficiency would not have caused a failure of the SSD strategy for FA 8. There was a very short period of time when the fault could have affected 4 kV SD BD "A" and there was significant recovery time available (approximately 2 hours) due to the required SSD loads not being powered from 4 kV SD BD "A".
Inspection Report# : 2006014*(pdf)*

Significance: G Sep 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Cellular Phone Communications Unreliable for Alternate Shutdown in FA16
The team identified a non-cited violation (NCV) of Unit 2 Operating License Condition 2.C.14 and Unit 3 Operating License Condition 2.C.7 for failure to have adequate communications to implement alternate shutdown for a fire in fire area (FA) 16 using procedure 2/3-SSI-16.

This issue is a performance deficiency because the cell phone system was unreliable and the F4 portable radio system was not credited for a fire in FA 16. The finding is greater than minor because it affected the ability of the licensee to maintain communications for a fire in FA 16 and is associated with the mitigating systems cornerstone and respective attribute of protection against external factors, i.e., fire in that degraded communications would impact the ability to achieve SSD following a fire. This finding was determined to be a finding of very low safety significance (Green) because it only affected the ability to reach and maintain cold shutdown conditions due to the availability of alternate communications measures (F4 radios) for a time period sufficient to achieve hot shutdown conditions.
Inspection Report# : 2006014*(pdf)*

Significance: G Jun 30, 2006

Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement Required Fire Watches
A Green non-cited violation of TS 5.4.1.d, Fire Protection Program Implementation, was identified by the inspectors for the licensee's failure to implement compensatory measures (i.e., roving fire watches) as prescribed by the Browns Ferry Fire Protection Plan for disabled fire detection systems in multiple Fire Areas in the Control Building. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 102745.

This finding was more than minor since it was associated with the Protection Against External Factors attribute of the Reactor Safety Mitigating Systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because the capability of other principal defense-in-depth fire protection features were unaffected, such as the associated fire barriers, control of transient combustibles, manual fire suppression equipment, and the fire brigade. This finding has a crosscutting element in the area of human performance because the fire protection impairment permits and Fire Watch/Coverage sheets did not provide instructions for conducting compensatory measures (i.e., roving fire watches) in all the necessary fire areas.
Inspection Report# : 2006003*(pdf)*

Significance: G Mar 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform An Adequate Risk Assessment
A Green non-cited violation (NCV) of 10 CFR 50.65(a)(4) was identified by the inspectors for the licensee's failure to conduct an adequate risk assessment of the Unit 2 systems, and Unit 3 systems affecting Unit 2, that were taken out of service for scheduled maintenance from March 1 through 3, 2006. This resulted in an unrecognized increase in the level of risk as determined by a probabilistic safety analysis (PSA) evaluation by the licensee. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 98414.

This finding is more than minor because it is associated with the Mitigating Systems Cornerstone attribute of equipment performance and adversely affected the cornerstone objective in that the licensee failed to perform an adequate risk assessment prior to conducting online maintenance. The licensee's risk assessment did not consider all the risk significant systems and support systems that were out of service which, when properly evaluated, did result in an increased level of risk from a PSA perspective. However, the finding was of very low safety significance because the risk deficit for Incremental Core Damage Probability was less than 5E-6 and for Incremental Large Early Release Probability was less than 5E-7, and at least two risk management actions were in place. This finding involved the cross cutting aspect of Human Performance for failure to recognize and follow established procedures for adequately assessing the risk associated with online maintenance.
Inspection Report# : 2006002*(pdf)*

Barrier Integrity

Significance: G Jun 30, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Primary Containment Leak Via The 2A RHR Heat Exchanger In Excess Of Analyzed Limits
A Green self-revealing non-cited violation of TS 3.6.1.1 was identified due to the licensee's failure to adequately evaluate the significance of a leak from the Unit 2 2A Residual Heat Removal heat exchanger that would have constituted a direct pathway from the suppression pool to the environment during accident conditions. This issue was documented in the licensee's corrective action program as Problem Evaluation Reports 81236 and 83123.

This finding is greater than minor because it is associated with the System, Structure or Component and Barrier Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective of assuring a

containment barrier for protecting the public from radionuclide releases caused by accidents or events. In addition, if left uncorrected it would become a more significant safety concern. The finding was determined to be of very low safety significance because of the short exposure time, and the ability of the operators to detect and isolate the leak. This finding has a cross-cutting element in the area of problem identification and resolution because the licensee did not adequately evaluate an identified problem that adversely affected primary containment integrity, and as such failed to affect a resolution that addressed the cause and extent-of-condition.
Inspection Report# : 2006003*(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Significance: SL-IV Mar 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Report A Safety System Functional Failure Per 10 CFR 50.73
A Severity Level IV non-cited violation (NCV) of 10 CFR 50.73(a)(2)(v)(D) and (vii)(D) was identified by the inspectors for the licensee's failure to submit a licensee event report for a safety system functional failure of the Unit 2 residual heat removal pressure suppression chamber containment isolation valves. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 99193.

In Section IV of the NRC Enforcement Policy, the significance of violations involving the failure to make required reports is not dispositioned using the Reactor Oversight Program's Significance Determination Process. The licensee's failure to provide a written event report does potentially impact the NRC's ability to carry out its regulatory function. However, because this failure to report per 10 CFR 50.73 did not actually impede or influence regulatory action, and the condition that required reporting under 10 CFR 50.73 was previously determined to be of very low safety significance in inspection report 05000260/2005003, the NRC has characterized the significance of this reporting violation as a Severity Level IV in accordance with Section IV.A.3 and Supplement I of the NRC Enforcement Policy.
Inspection Report# : 2006002*(pdf)*

Significance: N/A Nov 18, 2005
Identified By: NRC
Item Type: FIN Finding
Problem Identification and Resolution (PI&R) Inspection - U2/3 Results
Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. Site management was purposely active and involved in the Corrective Action Program (CAP) and focused appropriate

attention on significant plant issues. The licensee was effective at identifying problems at a low threshold and entering them into the CAP. In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, several issues were identified related to ineffective implementation of corrective actions for previously identified NRC violations and other corrective action issues identified by the licensee.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Improvement was noted in management oversight to ensure all contributing causes were being adequately considered for broader corrective actions, extent of condition reviews, and enhanced trending.

Self-assessments, audits performed by the Nuclear Assurance (NA) organization, and Multi-site CAP Self-Assessments, were effective in identifying issues and entering them into the CAP. These audits and self-assessments were self-critical and identified substantive issues, numerous lower level problems, and areas that needed improvement. The audits and self-assessments reviewed appeared to be comprehensive and thorough. However, several identified repeat issues from previous self-assessments and audits in which prior corrective actions had proven ineffective. Although new Problem Evaluation Reports (PERs) were issued to address each specific repetitive problem, the licensee did not always clearly delineate the repeat nature of the PER and thereby lost an opportunity to bring additional attention to the problem or take action to determine why the previous corrective actions were ineffective.

Based on review of the licensee's Concerns Resolution Program (CRP) and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns. Increased program usage in conjunction with the increase in Unit 1 recovery activities was being adequately managed. Based on the samples reviewed, the depth of issue evaluations were adequate to address the identified concerns raised to the CRP. Oversight of contractor CRPs was being implemented in an appropriate manner.

Inspection Report# : 2005011*(pdf)*

Last modified : December 21, 2006